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Present Claims

Please cancel claims 1-15.

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

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15. (Canceled)

16. (Currently Amended) A backlight for a liquid crystal display employing light recycling, said backlight comprising:

a light source;

a bundle of optical fibers, said optical fibers including an optically upstream side and an optically downstream side, said optical fibers further including a cladding material~~.~~;

a reflective layer fabricated from a highly reflective material, said material being selected from the group comprising aluminum, silver, and barium sulfate, magnesium oxide, and organic materials, wherein said reflective layer reflects at least 95% of light energy from said optical fibers incident thereon and wherein said optically downstream side of said optical fibers transmits light energy incident in a plane normal to the plane of said reflective layer ~~.~~; and

wherein said bundle of optical fibers is configured to receive light from said light source and distribute the light to said reflective layer.

17. The backlight of claim 16 wherein said light source is an incandescent lamp.

18. The backlight of claim 16 further comprising one or more lenses configured to couple light from said light source into said optically upstream side of said optical fibers.

19. The backlight of claim 16 wherein said optically upstream side of said optical fibers is positioned in operative engagement with said light source for coupling light therein.

20. The backlight of claim 16 wherein said optically downstream side of said optical fibers are distributed in a substantially orderly pattern on said reflective layer, said orderly pattern being selected from the group comprising hexagonal, rectangular, square, symmetrical, triangular, and octagonal.

21. The backlight of claim 16 wherein said optically downstream side of said optical fibers are distributed in a substantially random pattern on said reflective layer.

22. The backlight of claim 16 wherein said cladding is removed from a portion of said optically downstream side of said optical fibers.

23. The backlight of claim 16 wherein said cladding is roughened on a portion of said optically downstream side of said optical fibers.

24. The backlight of claim 16 wherein said reflective layer comprises barium sulfate.

25. The backlight of claim 16 wherein said backlight reflects at least 85% of light energy incident thereon.

26. The backlight of claim 16 wherein said backlight reflects at least 95% of light energy incident thereon.

27. A liquid crystal display comprising:
the backlight of claim 16;
an electrically addressable array including a liquid crystal cell;
a substantially non-absorptive filtering array; and
a broadband polarizer.

28. The liquid crystal display of claim 27 wherein said filtering array comprises at least one member selected from the group consisting of a cholesteric liquid crystal polarizing layer, an interference thin film stack, a Bragg reflector constructed of birefringent polymers, and a holographic filter.

29. The liquid crystal display of claim 27 wherein said filtering array comprises a cholesteric liquid crystal polarizing layer.

30. The liquid crystal display of claim 27 wherein said broadband polarizer comprises a cholesteric liquid crystal polarizing layer.

31. A method for fabricating a backlight for a liquid crystal display, said method comprising:

providing a light source;

providing a reflective layer fabricated from a highly reflective material, said material being selected from the group comprising aluminum, silver, and barium sulfate, wherein said reflective layer reflects at least 95% of light energy incident thereon;

providing a bundle of optical fibers, said optical fibers including an optically upstream side and an optically downstream side, said optical fibers further including a cladding material;

positioning said optically upstream side of said optical fibers in operative engagement with said light source; and

positioning said optically downstream side of said optical fibers in operative engagement with said reflective layer, said optically downstream side of said optical fibers arranged to transmit light energy incident in a plane normal to the plane of said reflective layer.

32. The method of claim 31 wherein said positioning said optically upstream side comprises interposing at least one lens between said light source and said upstream side of said optical fibers.

33. The method of claim 31 wherein said positioning said optically down stream side comprises selectively roughening and removing a cladding material from a portion of said optically downstream side of said optical fibers.

34. The method of claim 33 wherein said selectively roughening and removing comprises mechanically abrading said downstream side of said optical fibers.

35. The method of claim 33 wherein said selectively roughening and removing comprises immersing said downstream side of said optical fibers into an aqueous solution of hydrofluoric acid.

36. A method for fabricating a liquid crystal display, said method comprising:

providing a light source;

providing a reflective layer fabricated from a highly reflective material, said material being selected from the group comprising aluminum, silver, and barium sulfate, wherein said reflective layer reflects at least 95% of light energy incident thereon;

providing a bundle of optical fibers, said optical fibers including an optically upstream side and an optically downstream side, said optical fibers further including a cladding material;

positioning said optically upstream side of said optical fibers in operative engagement with said light source <u>wherein said optically downstream side of said optical fibers transmits light energy incident in a plane normal to the plane of said reflective layer</u>;

positioning said optically downstream side of said optical fibers in operative engagement with said reflective layer;

superposing a substantially non-absorptive spectral filtering array with said reflective layer; and

superposing an electrically addressable array including a liquid crystal cell with said reflective layer.